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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/474,607	12/29/1999	FRED OLIVEIRA	E0295/7136	2467
7590 11/12/2004 RICHARD F GIUNTA C/O WOLF GREENFIELD & SACKS PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 022102211			EXAMINER POLLACK, MELVIN H	
			ART UNIT 2145	PAPER NUMBER

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/474,607

Applicant(s)

OLIVEIRA ET AL.

Examiner

Melvin H Pollack

Art Unit

2141

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892) *
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: see attached office action.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09 September 2004 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

3. In the response to the last office action, the applicant changed the scope of the claims by adding clarifying limitations to independent claims 1 and 8, and by further defining terms in the remarks section of the RCE. The examiner acknowledges that no new matter has been added by this amendment.

4. The examiner thanks the applicant for clarifying and defining thoroughly a variety of concepts for which there has been some confusion between the two parties, and as requested in the interview summary dated 7/14/04. The examiner accepts the definitions and will interpret the claims in light of the remarks section of the RCE (Pp. 8-12) and of the specification.

5. The art rejections within the final rejection have been withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning et al. (6,108,684) in view of Jantz (5,867,736).

8. For claim 1, DeKoning teaches a method (abstract) of processing an "I/O request" control command (col. 1, line 25 – col. 4, line 40) executed by a host computer (Fig. 2, #220) in a multi-path system (Fig. 2, #252) including the host computer (Fig. 2, #220), a device (Fig. 2, #110) and multiple physical paths coupling the host computer to the device (Fig. 2, #150), the out of band control command identifying a target address in the device (Figs. 6 and 7), the control command further identifying, from among the multiple physical paths, a target physical path for transmission of the out of band control command between the host computer and the device (col. 7, lines 45-60), the method comprising the steps of:

a. Selecting a selected physical path for transmitting I/O control command between the host computer and the device, the selected physical path being selected from among the multiple physical paths based upon a selection criteria that enables the selected physical path to be other than the target physical path identified by the control command (col. 7, lines 45-60); and

b. Transmitting the control command between the host computer and the device over the selected physical path (col. 8, lines 5-10).

9. DeKoning does not expressly disclose that the I/O requests comprise out-of-band control commands that bypass at least one layer in a normal read/write path in the host computer. Based on the definitions referenced above, the examiner interprets that the I/O request term may imply

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in-band commands (read/write) or out-of-band commands (IOCTL/get/put). Jantz teaches a method (abstract) of separating I/O functions and developing out-of-band systems for RAID systems (col. 2, lines 20-35) such as DeKoning's, and the development of IOCTL commands to act more like in-band commands to achieve portability (col. 1, line 5 – col. 4, line 35). At the time the invention was made, one of ordinary skill in the art would have used ioctl commands in DeKoning to improve RAID management (col. 1, line 11) in issues such as reliability (col. 1, lines 52-57).

10. For claim 2, DeKoning teaches that the device is a data storage system (col. 5, lines 10-20), wherein the control command requests access to information stored on the data storage system (Fig. 7), and wherein the step (B) includes a step of transmitting the information between the host computer and the data storage system over the selected physical path (Fig. 6, #604).

11. For claim 3, DeKoning teaches that the multi-path system further includes a second computer that is coupled to the data storage system (Fig. 3, #323), wherein the data storage system includes a shared storage region shared by the host computer and the second computer, wherein the target address specifies the shared storage region (col. 8, lines 35-45), and wherein the step (B) includes a step of transmitting the information between the host computer and the shared storage region over the selected physical path (col. 11, lines 20-40).

12. For claim 4, DeKoning teaches that the step (A) includes a step of selecting the target physical path as the selected physical path when the target physical path is operational, and selecting a different one of the multiple physical paths when the target physical path is non-operational (Fig. 4, #400).

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13. For claim 5, DeKoning teaches that the step (A) further includes a step of automatically selecting the different one of the multiple physical paths when the target physical path is non-operational, without intervention of a system administrator (Fig. 6).

14. For claim 6, DeKoning teaches that the step (A) includes a step of selecting the selected physical path based upon a selection algorithm that distributes, among the multiple physical paths a load of operations passing between the host computer and the device (col. 9, lines 50-55).

15. For claim 7, DeKoning teaches that the step (A) includes a step of selecting the selected physical path based upon a state of previously assigned operations queued for transmission from the host computer to the device over the multiple physical paths (col. 5, line 40 – col. 6, line 10).

16. Claims 8-14 are drawn to a software system that implements the method drawn in claims 1-7. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 1-7 are rejected, claims 8-14 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

17. Claims 15-21 are drawn to a hardware system that implements the method drawn in claims 1-7. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 1-7 are rejected, claims 15-21 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

18. Claim 22 is drawn to the limitations in claim 20. Therefore, since claim 20 is rejected, claim 22 is also rejected for the reasons above.

Conclusion

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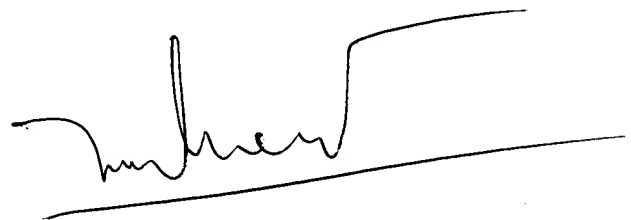
19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin H Pollack whose telephone number is (571) 272-3887. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571) 272-3880. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MHP
08 November 2004

A handwritten signature in black ink, appearing to read 'Le Hien Luu', written over a horizontal line.

LE HIEN LUU
PRIMARY EXAMINER